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REPORT

OF THE

CANADIAN ARCTIC EXPEDITION 1913-18

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PART B: SCHIZOPOD CRUSTACEANS

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SOUTHERN PARTY—1913-16

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The Schizopod Crustaceans of the Canadian Arctic Expedition, 1913-18.

By Waldo L. Schmitt.

With three figures in the text.

In all, only three Mysids and three Euphausids were taken. Of the former one is apparently new to science. It is described and named in honour of Dr. R. M. Anderson, leader of the southern party of the expedition.

Of these six species the most frequently encountered was the common *Mysis oculata* (Fabr.), found in all arctic seas and the northern part of sub-arctic regions.[1] This confirms at least one of the four schizopod records given by Richters for the Bering sea.[2] The other three not represented in the present collection were: *Stilomysis*> *Mysideis grandis* (Goës); *Pseudomma truncatum* Smith; and *Meganyctiphanes*> *Thysanopoda norvegica* (Sars)? Concerning the last of these Hansen says, " Richters' statement, with a query, about its occurrence in Bering sea is undoubtedly wrong[3]; of each of the other two he remarks that though the locality is not improbable, its correctness ought to be confirmed.[4]

Mysis relicta Lovén, the well-known relict of the fresh-water lakes of boreal Europe, heretofore reported from North America only from lakes Superior, Michigan (12–148 fathoms)[5], and Erie[6], Green lake, Wisconsin (17–49 meters)[7], and Indian harbour, Labrador (fresh-water)[8], is now to be listed from Bernard harbour, Northwest Territories, where it was taken by Mr. Frits Johansen "from the stomach of *Cristivomer namaycush* (Walbaum), caught in lake, inland."

Neomysis andersoni, the new species is known only from the type locality, Grantley harbour, port Clarence, Alaska.

Thysanoëssa longipes Brandt, originally described from the sea of Okhotsk and since ' taken at no less than fourteen places in the colder temperate north Pacific and Bering Sea,"[9] has its range extended into the Arctic ocean as far as cape [illegible] (point Barrow), Alaska.

T[illegible] *inermis* (Krøyer), though not taken farther to the eastward along [illegible] coast of North America than 140° 51′ W., by this expedition, is practi[illegible]mpolar in its distribution, having been taken also at Spitzbergen, in the [illegible], and Franz Joseph Land. In addition, it is rather widely distributed [illegible]ne northern north temperate regions of the Atlantic, from the British Isles and Vineyard Sound northward into the Arctic ocean and Davis strait, and in Bering sea and adjacent area of the North Pacific."[10]

Thysanoëssa raschii (Sars) in its distribution approximates that of *Thysanoëssa inermis*. It, however, does not range quite as far south in the North Atlantic, never having been taken south of Scotland, or cape Cod. On the other hand, it has been found both farther to the south in the North Pacific, as far as 39° 25′ N. (150° 28′ W.)[11] and farther to the eastward in the Pacific Arctic,

[1] Zimmer, Nordisches Plankton, VI, 162, 1909.
[2] Richters, Abh. senckensb. naturf. Ges., XIII, 406, 1884.
[3] Hansen, Proc. U. S. Nat. Mus., **48**, 70, 1915.
[4] Hansen, Danish Ingolf, Exped., III, 111 and 114, 1908.
[5] Smith, Rept. U. S. Fish Comm., 1872–73, 643, 1874.
[6] Kellicott, cf. Journ. Royal Micros. Soc., II, 152, 1879. For a complete bibliography of this species to 1905, see Samter, Abh. K. preus. Akad. Wissen., Berlin, 1905, Abh. V.
[7] Marsh, Zool. Anz., XIV, 275, 1891, and Amer. Nat., XXVIII.
[8] Rathbun, in " Labrador " by Grenfell *et al*, Appendix II, 452, 1909.
[9] Hansen, Proc. U. S. Nat. Mus., **48**, 90, 1915.
[10] Hansen, Proc. U. S. Nat. Mus., **48**, 94–96, 1915.
[11] Hansen, Proc. U. S. Nat. Mus., **48**, 97, 1915.

where it was taken by this expedition as far east as Bernard harbour, Northwest Territories.

Strange to say, the large *Neomysis*> *Mysis rayi* (Murdoch)[1] was not obtained, though considerable collecting was undertaken near point Barrow, the type locality. Other than those mentioned above there are only two schizopods which have been reported from near the region covered by the expedition, but not taken by it: *Gnathophausia gigas* Willemoës-Suhm[2] and *Thysanoëssa spinifera* Holmes[3], both from the southern Bering sea, off the coast of Alaska, latitudes 53° 56′ 50″ N. and 57° 40′ N., respectively.

The former is a species ranging as far south as the Hawaiian islands in the Pacific and the Azores in the Atlantic, but in the Atlantic not known to occur north of the 50th parallel[4]; the latter is strictly a Pacific form, which ranges southward along the West American coast nearly to the southern end of California.[5]

Of course the commoner arctic forms, such as *Michtheimysis mixta* (Lilljeborg)[6] and *Thysanoëssa neglecta*[6] and *longicaudata* (Krøyer)[7] are to be expected in this region, as well as almost any of the thirty-odd species occurring in the Atlantic Arctic or subarctic ocean, a list too long to introduce here. Reference is suggested to: Zimmer, Fauna Arctica, III (Die arktischen Schizopoden), 1904, and Nordisches Plankton, VI (Schizopoden), 1909, in which all these species are illustrated and fully keyed out; and Hansen Danish Ingolf Expedition, III (Crustacea Malacostraca I), 1908, and Proc. U.S. Nat. Mus., **48** (The Crustacea Euphausiacea of the U.S. Nat. Mus.), 1915.

In the following list of the species, and the stations at which they were taken reference has been made, in the case of the Mysids, to a plate and description of the species, and in the case of the Euphausids, to the latest review of the group. The drawings were made from balsam mounts by means of the Edinger drawing apparatus. All of the species, except one of *Mysis oculata*, so indicated, were collected by Mr. Frits Johansen, naturalist of the expedition.

MYSIDACEA

Mysis oculata (Fabr.)

G. O. Sars, Mon Norges Mysider, III, 69, pl. XXXI, 1879

Station 27 *n*: Collinson point, Alaska, September 20, 1913.
Pelagic, over about 1 foot of water; 8 inches ice.
4 juv. Taken in company with *Thysanoëssa raschii*.

Station 27 *q*: Collinson Point, Alaska, September 26, 1913.
Pelagic, over about 1 fathom of water.
1 juv.

Station 27 *s*: Collinson point, Alaska, October 3, 1913.
Depth about 3 fathoms; sandy mud with stones and algæ.
2 juv.

Station 27 *y*[1]: Lagoon at Collinson point, Alaska, October 8, 1913.
Pelagic, over 2 feet of water.
2 (fragmentary, sex ?) and 6 juv. Taken in company with *Thysanoëssa raschii*.

[1] Murdoch, Proc. U. S. Nat. Mus., **7**, 519, 1884.
[2] Ortmann, Proc. U. S. Nat. Mus., **31**, 38, 1906.
[3] Hansen, Proc. U. S. Nat. Mus., **48**, 90, 1915.
[4] Zimmer, Nordisches Plankton, VI, 33, 1909.
[5] Zimmer, Nordisches Plankton, VI, 163, 1909.
[6] Zimmer, Nordisches Plankton, VI, 20, 1909.
[7] Hansen, Proc. U. S. Nat. Mus., **48**, 97–100, 1915.

Station 28 *o*: Collinson point, Alaska, July 8, 1914.
From stomach of *Salvelinus malma* W.
4 ♀, 6 juv.

Station 28 *p*: Mouth of Marsh river, Collinson point, Alaska, July 12-13, 1914.
From stomach of *Coregonus* sp. ("White-fish").
1 ♂, 3 ♀, and 75+ juv.

Station 37 *g*: Bernard harbour, Northwest Territories, September 3, 1914.
Pelagic, over 0–2 fathoms.
250+, ♀ and juv.

Station 37 *j*: Bernard harbour, Northwest Territories, September 1, 1914.
Pelagic, over about 2 fathoms of water.
1 ♂.

Station 41 : Bernard harbour, Northwest Territories (outer harbour), July 20, 1915.
Depth about 5 fathoms; bottom, sandy mud with algæ.
7 ♀.

Station 41 *c*: Bernard harbour, Northwest Territories (outer harbour), July 28, 1915.
Depth, 5 fathoms; bottom, sandy mud with algæ.
4 ♀.

Station 41 *f*: Bernard harbour, Northwest Territories (outer harbour), August 1, 1915.
Depth, about 3 fathoms; bottom, mud with brown algæ.
1 ♀.

Station 41 *s*: Bernard harbour, Northwest Territories (inner harbour), August 24, 1915.
Surface.
3 juv.

Station 41 *u*: Bernard harbour, Northwest Territories, end of August, 1915.
From stomach of *Salvelinus malma* W.
1 ♂, 1 ♀. Taken in company with *Thysanoëssa raschii*.

Station 42 *y*: Dolphin and Union strait, Northwest Territories (Bernard harbour), December 6, 1915.
Pelagic, over 3 fathoms water.
1 ♀, 1

Station 42 *z*: Dolphin and Union strait, Northwest Territories (Bernard harbour), December 12, 1915 (midnight).
Pelagic, over 3 fathoms water.
1 juv.
(Schizopoda, Schmitt).

Station 43 *b*: Dolphin and Union strait, Northwest Territories (off Stapylton bay), September 14, 1915.
Depth 25–30 fathoms; bottom, sandy mud with pebbles, but no algæ.
1 ♂, 2 ♀.

Station 43 *c*: Dolphin and Union strait, Northwest Territories (west of Cockburn point), September 14, 1915.
Pelagic, over 15–20 fathoms; bottom, sandy mud with stones and algæ.
1 ♀.

Station 59 *a*: 71° 55′ North, about 125° West, off cape Kellett, Banks island, Northwest Territories, September 7, 1914.
Depth 5–6 fathoms; bottom, sand with Laminariæ and thread algæ; 34 F.; triangle-dredge, 2 miles an hour, ¼ mile distance. George H. Wilkins, collector.

Mysis relicta Lovén.

G. O. Sars, Mon. Norges Mysider, III, 73, pl. XXXXI, 1870.

Station 42 r^1: Bernard harbour, Northwest Territories, October 10, 1915. From stomach of *Cristivomer namaycush* W., caught in lake inland.
2 ♂, 4 ♀.

Neomysis andersoni n. sp.

This apparently new species of *Neomysis* was collected by Mr. Frits Johansen of the Southern Party of the Canadian Arctic Expedition at Grantley harbour, Port Clarence, Alaska, August 3–4, 1913. (Stations 20 *a*, *f*, surface, 1 ♂, length 20 mm., 3 ♀, 20 + juv.). Catalogue, Nos. 1251 and 1252, Victoria Memorial Museum, Ottawa, Canada.

Though considerably smaller, it is similar to *Neomysis rayi*. It differs, however, from this and all other related species on the west coast in the armature of the telson. This consists of comparatively large spines, between which are intercalated groups of smaller ones rather regularly arranged, except for the interspace adjacent to the large terminal spines of the telson, which contains three of the smaller spines; the interspaces of the distal third of the telson have four, five, or six spines between each of two larger ones; proximally there seem to be only two small spines to each interspace; terminally there are two large spines with two small ones between. The telson is deeply sulcate above and about three-fourth as long as the rest of the abdomen; the inner branch of the uropods is about as long as the telson, while the outer exceeds the telson by a little more than one-third its length.

FIG. 1.—*Neomysis andersoni*, ♀, × about 15. *a*, dorsal view of antennal region; *b*, of tail fan.

From *Mysis? costata* Holmes (see Hansen, University California Pub. Zool., **11**, 177, pl. 9, figs, 2 a–d), which has a telson somewhat similarly armed laterally it is at once distinguished by the fact that the two large terminal spines are not juxtaposed, but are separated by two smaller ones.

The frontal plate is proportioned like that of *N. franciscana* Holmes (Hansen, *l. c.*, 178, pl. 9, figs. 3 a–b, 1913), and is subtruncate, and somewhat sinuous, forming on the frontal margin three very slight lobes, one at each

The Arctic Institute of North America

antero-lateral angle of the frontal plate and a median one which is slightly behind the line connecting the anterior margins of the lateral convexities; dorsally the frontal plate is slightly grooved or depressed between the median and lateral lobes.

The eyes are short and stout, as in *N. franciscana* and likewise reach the distal segment of the antennular peduncle, which, unlike that species, is nearly one-half and not only one-third as long as the antennal scale. The distal segment of the antennular peduncle is about, or a little more than, twice as long as the second and about two-thirds as long as the first. The antennal peduncle reaches about as far forward as the eyes. The antennal scale is about twelve times as long as wide at the widest part; the terminal portion beyond the suture is contained about six and one-half times in the total length of the scale.

FIG. 2.—*Neomysis andersoni*, fourth pleopod, × about 15

Fourth pleopod of male similar to that of *N. americana* (Smith) (Rept. U.S. Fish Comm., I, 552, 1873), ultimate segment of outer ramus little more than half the length of the curved terminal stylets, penultimate segment between five and one-half and six times as long as the ultimate (instead of four or five times, as in *N. americana*).

This species is most closely related to *N. americana*. But the telson is relatively not so broad, tapering less abruptly toward the tip, and the smaller spines are more numerous in the interspaces between the larger spines, at least

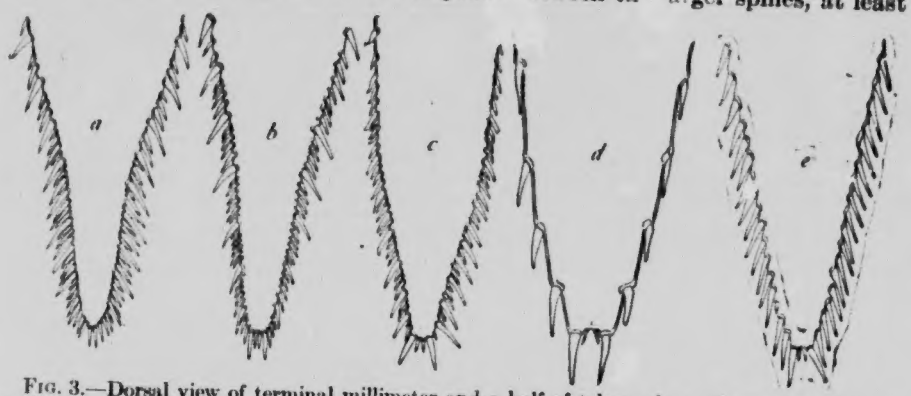

FIG. 3.—Dorsal view of terminal millimeter and a half of telson of: *a*, *Neomysis andersoni* juvenile; *b*, *N. andersoni* adult ♀; *c*, *N. americana* ♀; *d*, *N. rayi*, ♀; *e*, *N. kadiakensis*, ♂; all × about 30, (last three added for purposes of comparison.)

along the distal half of the margin of the telson. In *N. americana*, the number of small spines to the interspace does not exceed three, and they are very indifferently grouped, one, two, or three between any two large spines. Moreover the antennal peduncle of *N. americana* is relatively longer, extending from one-third to one-half the length of its terminal joint beyond the second segment of the antennular peduncle; and the antennal scale is shorter and stouter, being less than ten, " about nine times as long as broad " and exceeding the antennular peduncle by less than half its length. In *N. andersoni* the antennal scale exceeds the antennular peduncle by more than half the length of the scale.

From the same station there are numerous immature individuals which have the same general appearance as the adult form described above, and similarly proportioned. The distal half of the telson, however, is more attenuate; the spines fringing the tip are subequal, while those on the lateral margins are more or less irregularly large and small, usually two or three small ones between each of two larger ones. This difference, I think, is due rather to immaturity than to a possible difference in species (cf. *Mysis oculata*, adult juvenile, G. O. Sars, l.c.).

EUPHAUSIACEA

Thysanosëa longipes Brandt.

Hansen, Proc. U. S. Nat. Mus., 48, 87, pl. I, figs. 3*a*–3*d*, pl. II, figs. 1*a*–1*e*, 1915.

Station 57 *a*: Cape Smyth (point Barrow), Alaska, August 8, 1916.
Pelagic, over about 1 fathom of water.
1 ♀, 1 juv., 1 fragmentary specimen. Taken in company with *Thysanoëssa inermis*.

Thysanoëssa inermis (Krøyer)

Hansen, Proc. U. S. Nat. Mus., 48, 93, pl. II, figs. 2*a*–2*d*, 1915.

Station 29 *f*: 70° 13′ N., 140° 50′ W., April 4, 1914.
From stomach of *Phoca hispida* Schreber. Depth, about 30 fathoms.
14 (partly digested, sex ?). Taken in company with *Thysanoëssa raschii*.

Station 57 *a*: Cape Smyth (point Barrow), Alaska, August 8, 1916.
Pelagic, over about 1 fathom of water.
1 ♀. Taken in company with *Thysanoëssa longipes*.

Thysanoëssa raschii (M. Sars)

Hansen, Proc. U. S. Nat. Mus., 48, 96, 1915.

Station 27 *n*: Collinson point, Alaska, September 20, 1913.
Pelagic, over about 1 foot of water; 8 inches ice.
1 ♂. Taken in company with *Mysis oculata*.

Station 27 *y*[1]: Lagoon at Collinson point, Alaska, October 8, 1913.
Pelagic, over 2 feet of water.
1 ♂. Taken in company with *Mysis oculata*.

Station 29 *f*: 70° 13′ N., 140° 50′ W., April 4, 1914.
From stomach of *Phoca hispida* Schreber. Depth, about 30 fathoms.
8 (partly digested, sex ?). Taken in company with *Thysanoëssa inermis*.

Station 41 *u*: Bernard harbour, Northwest Territories, end of August, 1915.
From stomach of *Salvelinus malma* W.
1 ♀. Taken in company with *Mysis oculata*.